

TWIN CITY LINES

WINTER 2011





Inside front cover (above): This issue traces the long and winding history of a single piece of rolling stock, a work car built by TCRT for the St. Paul Southern Interurban. This view shows it hauling freight at Pine Bend, meeting a scheduled passenger run that is headed for Hastings.

Front cover: This issue tells all about snow fighting in the Twin Cities. It was 1953 when John Runk visited Snelling Station to document the pending demise of the streetcars. The shop men may be moving plow #32 to the rear of the property to be scrapped. That's our car #1239 at right. Minnesota Historical Society collection.

TWIN CITY LINES

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The Minnesota Streetcar Museum operates the Como-Harriet Streetcar Line in Minneapolis and the Excelsior Streetcar Line in Excelsior. Its mission is to preserve Minnesota's electric railway heritage.

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TCRT FIGHTS SNOW

-Aaron Isaacs and Russ Olson

The December 2010 blizzard reminded us how difficult snow fighting can be in Minnesota. Even with the best of modern technology, it's fair to say that the big storm crippled the Twin Cities for about a week. What was it like in streetcar days—or horsecar days when everything was powered by muscle? Now that the historic Minneapolis Tribune is searchable online, we can watch TCRT learning how to run a streetcar system, and that includes snow removal. After reading the following Tribune stories, we now know how plowing evolved. In the days of horsecars, there were snowplows, but they were pulled, not pushed.

The first story describes horse cars and the steam-powered Lyndale Road, better known as the Motor Line.

Feb. 6, 1881

How Superintendent Atwood Cleared Ten Miles of Street Railway

"Such a large body of snow has not been seen upon the city streets during the ten years past. The earliest risers found the street car tracks drifted full, buried under three feet of snow on the level. It looked discouraging for pedestrians and persons compelled to travel about the city. Fully 18 inches of snow was estimated to have fallen during the night. As early as 4 A.M. Superintendent Atwood had ordered out four snow-plows, to each of which was attached four horses. By diligent work these plows managed to clear the tracks so that cars commenced to run at 6 o'clock. The snow-plows were kept at work all day, and occasionally would strike a drift impossible to penetrate, and a shovel brigade would be its only relief. Drifts on Hennepin Avenue between Washington Avenue and Second Street were found to measure four feet in depth. So far as

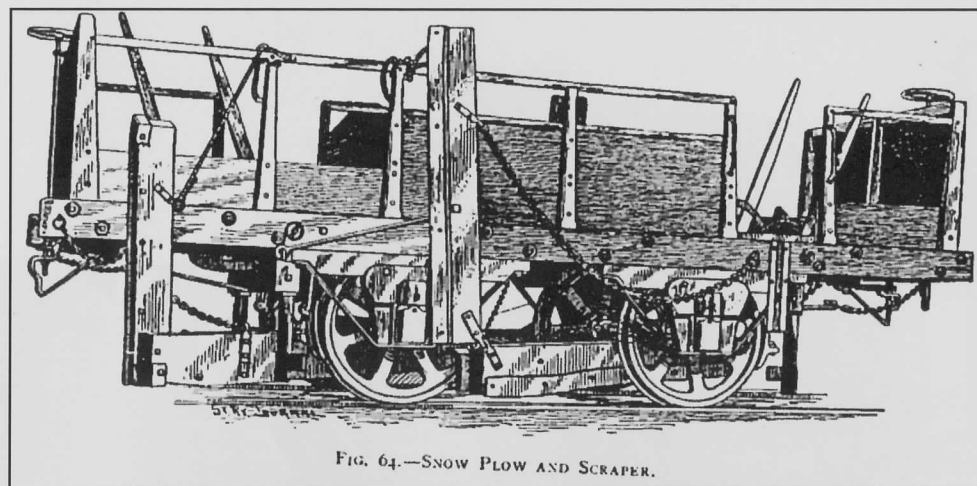


FIG. 64.—SNOW PLOW AND SCRAPER.

We have no photos of a Twin Cities streetcar plow being pulled by horses, but they looked like this. Russ Olson collection.

the street railway is concerned, the only effect of the storm was to reduce the running time from 12 minutes to 15 minutes between cars on the east and west lines, and from 10 minutes to 12 minutes on north and south lines. The contents of six barrels of salt during the 12 hours was sprinkled along the 10 miles of track and had a good effect of melting the snow from the rails.

The Lyndale Road all day had a deserted appearance, the noon motor having only shoveled its way through the drift and reached the lake last evening. All of the work of clearing recently performed will have to be done over again, the channel dug through the snow banks having drifted full and in some places to a depth of ten feet. All attempts at clearing the road will probably be abandoned as long as the present weather continues."

The first electric cars in Minneapolis debuted on the Fourth Avenue line on December 24, 1889. A month later they received their first snow test. If you think about it, suddenly it was a whole new ballgame. Now, instead of relying on horses to drag an unpowered car or plow, the cars were powered and adhesion (or the lack of it) became the issue. Steel wheels on steel rails can be

quite slippery, and finding the right combination of weight, power and sanding took TCRT about 15 years.

Interestingly, in the early electric days, snow plows were still pulled, not pushed, just as in horse car days. That would later change. The reference to the "electric plow motor" in the following story appears to refer to a self-powered car that had either a plow or a rotating sweeper brush, or both. A drawing of a powered sweeper (see the next page) appears in a story that describes the new Fourth Avenue line.

Jan. 24, 1890

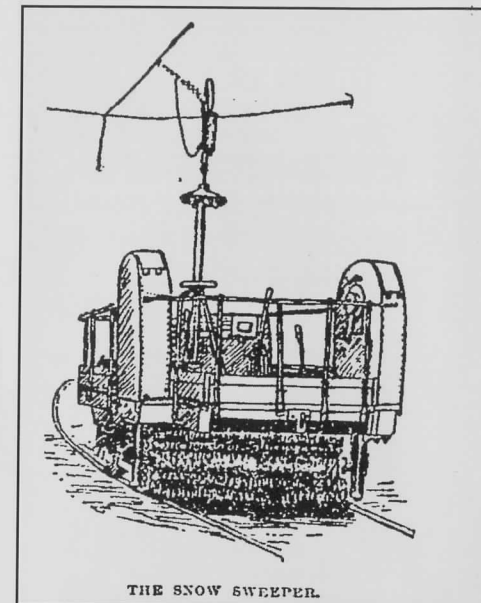
How the Cars Stood the Storm

"Mr. Lowry is especially pleased with the behavior of the Fourth Avenue electric line during the snow storm of Monday night. He says the cars were not materially interfered with, and that they did far better than either the motor or the horse cars. The track was cleared by hitching the snow plow to the rear of a car having a motor, by which means it was easily hauled over the line. It was not necessary to take out the electric plow motor."

In the next story, "summer cars" refers to the open cars normally used only during the warm months.



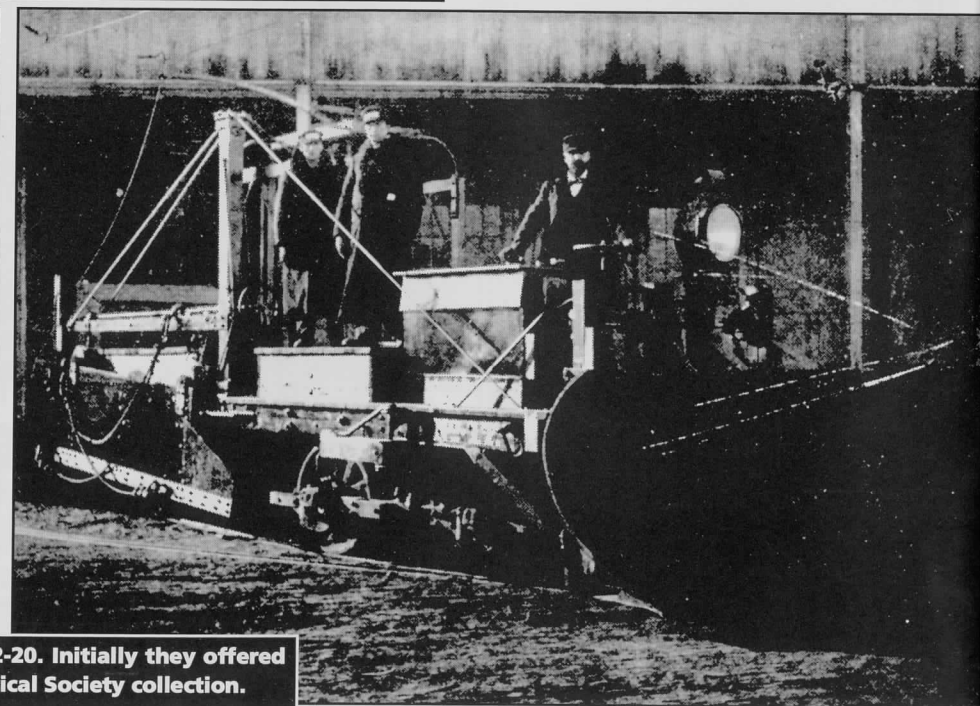
When the streetcars electrified in 1890-91, the old horse-drawn plows continued in to be used in St. Paul, where horsecars and electrics both operated on standard gauge track. The horse-era practice of pulling the plow, rather than pushing it, continued. Orange Empire Railway Museum collection.

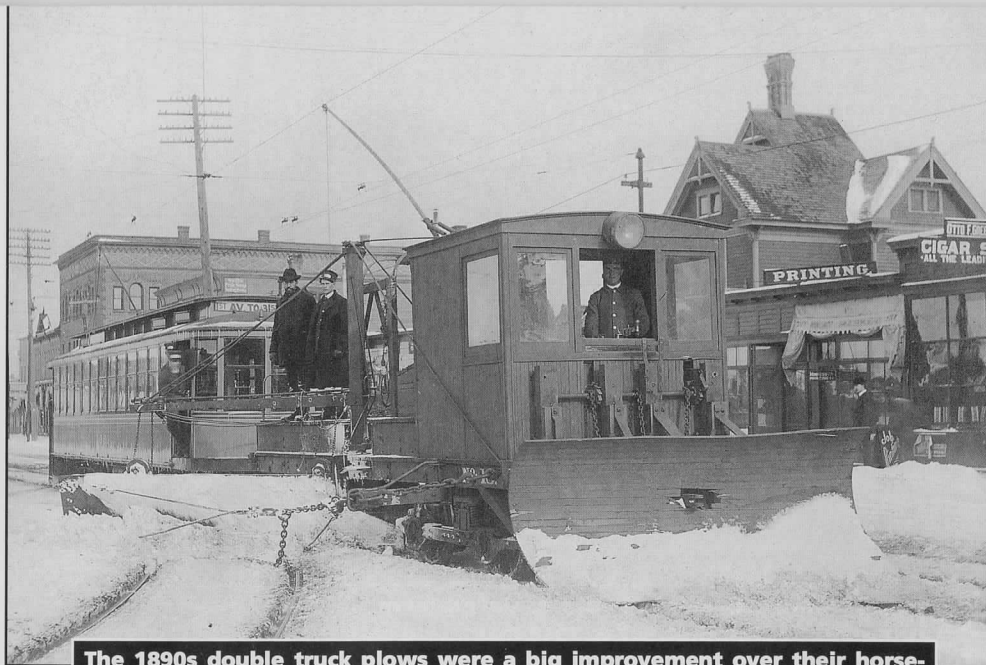


The opening of Minneapolis Street Railway's first electric line on 4th Avenue in late 1889 included this electric sweeper. It's unclear if it moved under its own power or was pushed or pulled.

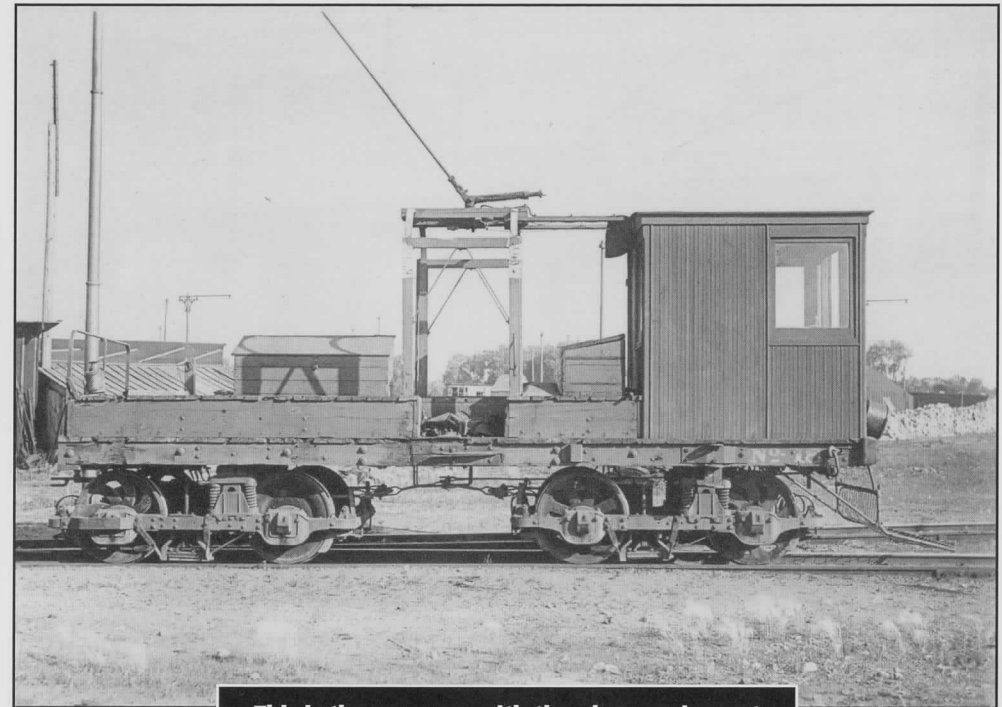


TCRT built a new generation of double truck plows during the 1890s, numbered 2-20. Initially they offered no protection for the operator, but cabs were added before 1904. Minnesota Historical Society collection.





The 1890s double truck plows were a big improvement over their horse-drawn predecessors, but were still rather primitive. For example, the plow blade is made of wood. The car is powered by four 25 horsepower motors, while the new streetcar behind it, which weighs only slightly more, has four 40 horsepower motors. The authors disagree on whether the streetcar is pushing the plow or is merely following closely.



This is the same car with the plow equipment removed for summer use as a general work car.



This is Jumbo, the conveyor plow designed by TCRT's Master Mechanic in 1893. Snow traveled up the front conveyor and was ejected to the right through the opening behind the conveyor and above the chain to the wing plow. It was photographed on Nicollet Avenue near 31st Street Station. It took ten motors to power everything, hence the double trolley poles to collect sufficient current.





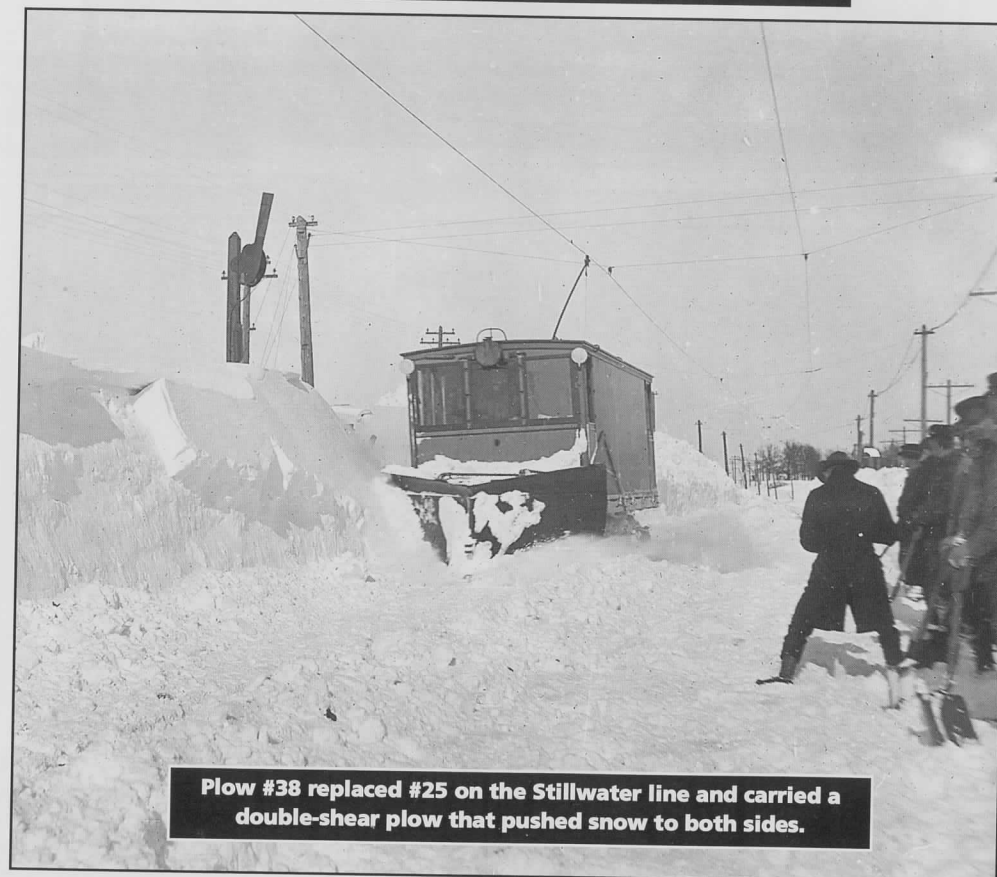
Single truck sweeper #1 was an off-the-shelf model built by McGuire-Cummings sometime in the 1890s. By 1910 it was stored and scrapped in 1912. TCRT liked plows more than sweepers, although it built six double-ended plow-sweepers in 1907-08.



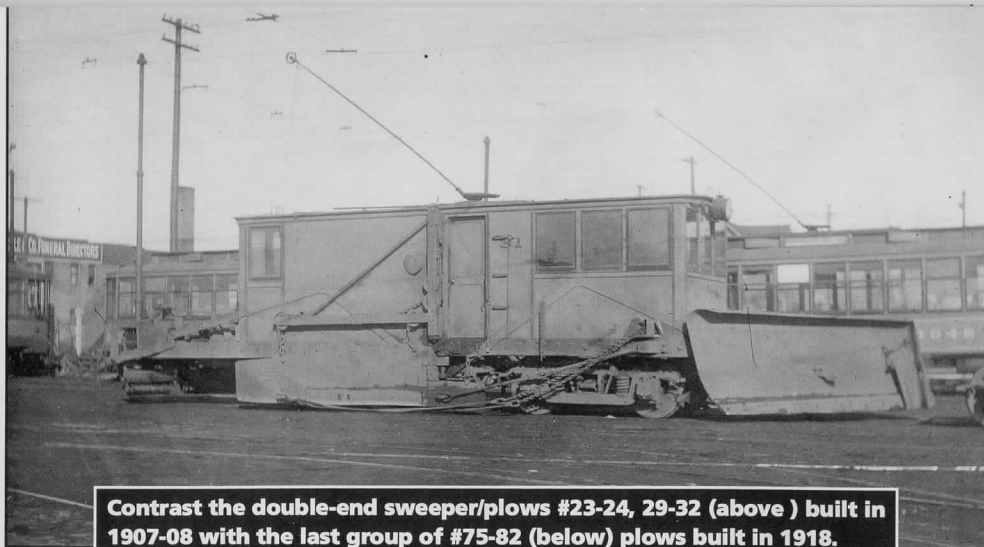
Plow #22, built in 1906, was the prototype for the 17 plows built from 1907 to 1918 that lasted until the end of streetcar service. It differed in detail from all of them.



Plow #25 was built in 1904 and assigned to the Stillwater line, doubling as an overhead wire line car. Although it pioneered the fully-enclosed box body of all subsequent TCRT plows, its lighter weight and smaller motors caused it to be sold to the Minneapolis, Anoka & Cuyuna Range interurban in 1918. It ran there until 1929.



Plow #38 replaced #25 on the Stillwater line and carried a double-shear plow that pushed snow to both sides.



Contrast the double-end sweeper/plows #23-24, 29-32 (above) built in 1907-08 with the last group of #75-82 (below) plows built in 1918.



Jan. 30, 1891

"The street car people have been building some snow plows, and on account of the unusually late snow season a full stock of these were on hand. The summer cars were pressed into service for power, then followed the snow plow car and the salt car behind. It has been found that this plan works better than to build a snow plow and motor combined."

As the system grew, more plows were needed and plowing techniques changed, with the plow now pushed by passenger cars. There was still considerable hand shoveling.

Mar. 2, 1893

"The task of digging out the 250 miles of track in the city has been a difficult one and has been accomplished only by hard work. From over every foot of streetcar track has been removed from two to ten feet of packed snow. The removal of the snow has been accomplished by trains of cars pushing snow plows, and where these would not enter, by gangs of men. The company has had 500 extra men at work."

JUMBO

In 1893 TCRT decided to build the ultimate snow plow. Rather than just push the snow to one side, it scooped it into a vertical conveyor, which fed the snow into another conveyor that threw it sideways from the track. It received its first real test just after New Years in 1894.

January 2, 1894

CLEARs THE TRACK. SNOW NOW HAS NO TERROR FOR THE STREET RAILWAY COMPANY

A Twentieth Century plow, the innovation of Master Mechanic Cooper, has been constructed and made its trial trip on the Minnehaha Line yesterday—the test wholly satisfactory—description of the monster, which is destined to prove a benefit to the public and a protection to citizens against the ill effects of blizzards.

"The winds may blow and the blizzard may howl and the snow drifts pile high, but the time when the Minneapolis citizen will have to bundle himself up and walk downtown on a stormy morning because the cars on his particular line are blockaded is past. This may seem a



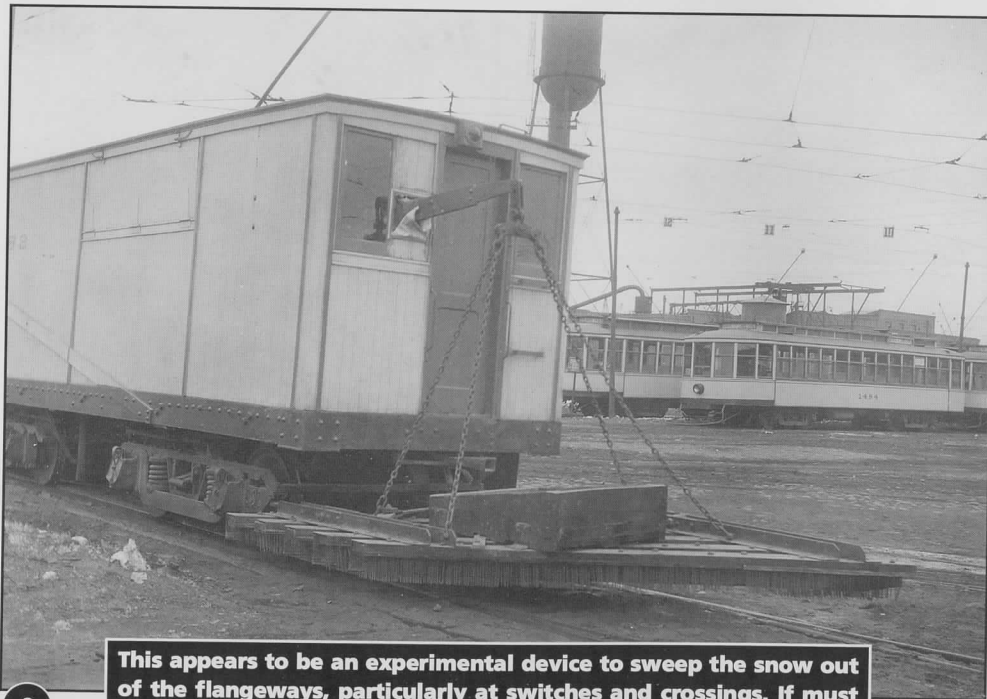


**Closeup of a sweeper broom.
Minnesota Historical Society collection.**

rash statement, particularly with the remembrance of the great blizzard of last winter in mind, but it is nevertheless true, and the fact is vouched for by the successful trial yesterday afternoon by the Twin City Rapid Transit Company of the new monster snow plow, the construction of which has been so carefully watched for the last three months.

The street railway officials are particularly proud of this latest addition to the equipment of their rolling stock, and they have guarded it under lock and key since the first steps in its construction were taken. The reason for the care they have exercised lest anyone should chance to see the plow lies in the fact that it is "sul generis", the only one of its kind, and Master Mechanic Cooper, whose invention the plow is, has not wished the public to know anything about it until its successful working had been demonstrated. Now that it has, Mr. Cooper is the proudest of the proud, and yesterday afternoon as he stood in the cab in the front of his big machine he could not keep the little smiles from chasing themselves across the corners of his mouth as the steel wing of the mighty plow pushed the billows of snow far from the tracks.

The plow itself is a monster. Its weight is 33 tons, and 10 motors are required to run it. Two trolley poles are used to draw enough of the 'electric



This appears to be an experimental device to sweep the snow out of the flangeways, particularly at switches and crossings. If must not have been successful, as no later photos of it are known.



Crane car #50 wasn't part of the normal snow removal fleet, but appears to have been pressed into service following a major storm. The location is Snelling Avenue south of Como Avenue. The crossbucks of the Northern Pacific crossing are visible in the distance. Minnesota Historical Society collection.



In 1908 brand new #30 gets its first workout along the Nicollet Avenue side of Nicollet Ball Park. At far right note the plow extension. The chain allowed the operator to pull it upright to avoid overhead wire center poles and the early mechanical rotating traffic signs that sat in the middle of intersections.



A service truck pulls up to the back door of a plow to replenish the salt and sand supply with buckets. Minnesota Historical Society collection.

fluid' from the wires, and a heavy iron crane is swung from one side for the suspension of the big steel wing which cleans the ground to a space of 15 feet from the rail. This wing itself weighs more than a ton and a half, and is so large that it is raised and lowered or set at the proper angle by machinery operated by electricity. In its construction half inch iron plates, reinforced by steel T rails weighing 60 pounds to the foot, have been used, and it is further braced by pieces of heavy hardwood timber. In appearance the plow looks like a freight car, with a cab like that of a locomotive in front. Over all the length is 39 feet, five feet longer than a freight car, but it is not, of course, so wide. The windows of the cab are higher than the roof of an interurban car, and though the plow is not so long, yet it seems a great deal longer than the interurbans. In the cab are two rheostats by which the four 25-horse power motors which furnish the motive power are controlled, and back of it are the rheostats controlling the motors which move the wing. The

motors which run the plow are on the axles, but the other six motors used for running the wing and the "scoop" in front are on the floor of the car itself.

This "scoop" is one of the features of the plow. The wing pushes the snow outside of the track away from the rails, but this takes care of everything between the rails. It is an inclined plane running from close to the ground to near the top of the cab, and it has high sides to keep the snow scooped up from going over its edges. Running in this inclined plane on endless chains are three sets of conveyors, little paddles of wood set at right angles to the plane, and when the chains are set in motion these conveyors catch the snow in the "scoop" and carry it to the top. As the snow reaches the top it is dropped on a set of conveyors running at right angles and is thus cast out at the side with the snow which the wing is pushing away from the outside of the track.

In the trial made yesterday a start was taken shortly after dinner from the Thirty-first street station. The track selected for the experiment was down

SERVICE

Your transportation company must be ready at all times to meet any emergency for the great majority depend upon street cars.

During April, the Street Car Company cleaned snow from 4,705 miles of track, more than ten times the distance from Minneapolis to Chicago.

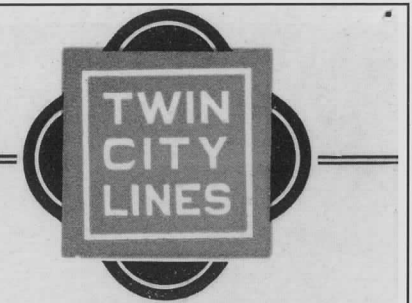
With summer just around the corner, street sweeping and sprinkling machines take up the work of the public service. Our share of this expense is \$75,000.00 a year.

These services are included in our whole-hearted effort to make Twin City transportation complete. Only by service, fully accomplished, can there be mutual pride and good will.

TWIN CITY LINES
THE TRADE MARK OF A FRIEND

TCRT let the public snow that it plowed their streets and that this service cost a pretty penny.

on the Minnehaha line, where the snow had not been cleared away since it first fell and in places it was over three feet deep. In it there was a crust of ice formed by the recent rains, and in places as the wing pushed its way through the drifts great pieces, eight or ten inches thick and three or four feet square would be hurled off to one side. At times at least a ton of snow would be carried in front of the wing. Down near Minnehaha the wing struck three boulders, all within ten feet of each other and each of them larger than a bushel basket. They were all buried under the snow and so escaped detection until the jar of striking them



ONE of the serious difficulties in operating a Street Railway in the Twin Cities and other cities in this latitude is the removal of snow and ice from the Street Railway tracks. In the cities of Minneapolis and Saint Paul, by agreement, the Company pays nineteen-fortieths of the cost of removing snow and ice from streets 40 feet wide from curb to curb, and in like manner for hauling away the snow on a strip 19 feet wide in streets which may be more or less than 40 feet wide. This applies, of course, only to streets used by our tracks.

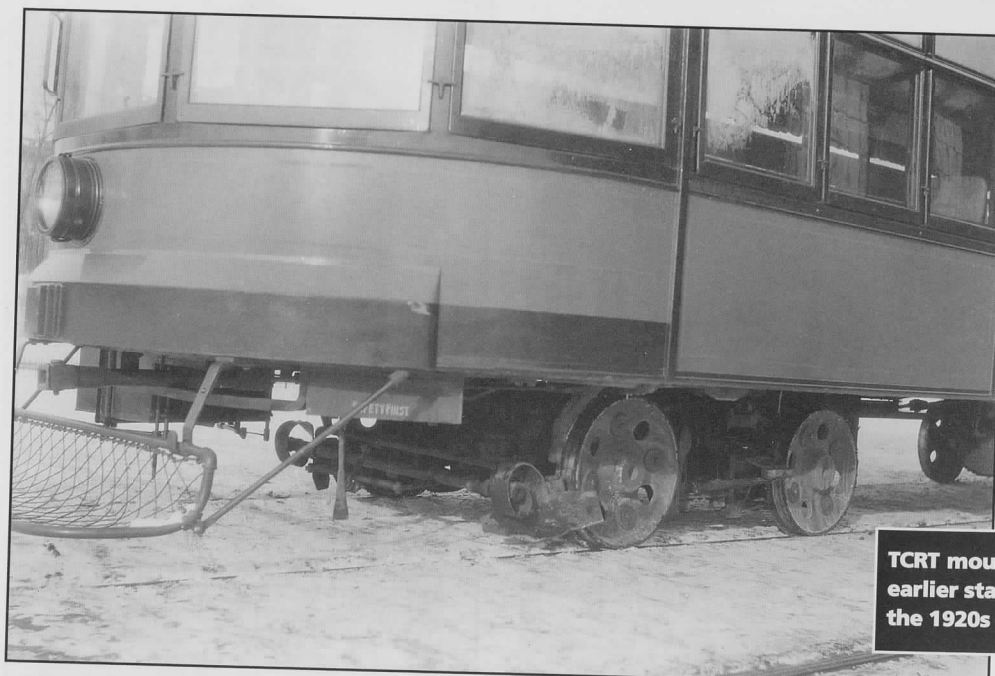
The Company's first duty, during and after a snowfall, is to get out its snowplows and clear its tracks so that Street Cars may be operated with the least possible interruption or delay. In this work the Company uses 18 snowplows, each manned by 3 or 4 men.

The snowplows in use in the Twin Cities represent an investment of \$176,080.18 and are used on an average only 20 days in the year. After each snowstorm a large crew of men is employed shoveling snow, cleaning out switches and otherwise restoring the tracks to as nearly normal operating condition as possible.

Each time one of our snowplows is taken out it costs the Company on an average \$90.24.

Plowing and disposing of snow is one of this Company's heavy items of expense. The total cost for the winter of 1916-1917 was \$84,861.87.

A. W. WARNOCK, General Passenger Agent,
Room 308, No. 1 Eleventh St. S., Minneapolis
Telephones—N. W. Main 4580—T. S. 33 134



TCRT mounted adjustable snow scrapers on the front trucks of its streetcars. Above right: This is the earlier standard model. Note the sander pipes. Above left: Spring-loaded scrapers were introduced in the 1920s on lightweight cars, as shown here, and were later installed on the rest of the fleet.



When it comes to snow removal, the Achilles heel of any rail system is its storage yards. All those switches have to be cleared before any cars can enter service. Snowplows don't work very well in these confined quarters and may be snowed in themselves, so hand shoveling is usually required. This is Snelling Station around 1910. Ramsey County Historical Society collection.

Motorman Chester Montgomery is scooping sand from the bin at the 44th and France loop. Ed Nelson photo.



The sand bin was located under the right front "peanut row" seat. Bob Schumacher photo.



Riding with a Snowplow

St. Paul Pioneer Press March 5, 1951

"Operation of a streetcar plow is no picnic. The writer rode one of them, No. 82, as it made its rounds late Saturday and early Sunday to satisfy curiosity as to whether or not it was as exasperating as he had heard. It is.

A snowplow carries a crew of three. No. 82's crew consisted of motorman Einar Ingvoldson, 56, plow operator or "wing man" Leonard Bedahl, 55 and conductor and assistant wing man John Flipse, 55. Crewmen find it tough going aboard the plows. There are no seats on which to take an occasional "breather" and the car's interior is filled with air compressors and tanks and huge motors that set up a mighty din as they put machinery into operation to clear snow off the street.

It should be explained that use of the plows over the weekend was not prompted by the need to ensure passage of trams but to remove snow packed by automobiles around rails, which might result in derailments. Through use of front and side "wings" or plows, the entire street surface was cleared of snow to encourage motorists to stay out of trolley lanes.

Operation of the plows is exasperating because one requires 24 inches clearance, compared with 18 inches needed by a streetcar. This

factor is evidently unknown to many motorists who park their cars along streets used by trams.

If a parked vehicle appears too close to the track as the plow moves along, the motorman halts. The wing man, constantly peering out a window, tells him whether or not to proceed. If there's any doubt as to clearance, the crews alights and checks before continuing.

No. 82's crew "bounced" some 80 autos parked too close to the tracks during its run over three tram lines. Bouncing, in trolley lingo, refers to a neat trick motorists should learn. The crewmen, each equipped with a shovel, dig a space on the curb side adjacent to the auto's four wheels. They then grip the vehicle's under frame, count "one-two-three!"—and the car is shifted out of the way in a jiffy.

This procedure, during early morning hours, eliminates blowing of the air whistle atop the plow to summon the vehicle's owner—which would likewise awaken householders for blocks around.

Most cars found too near tracks were in the vicinity of taverns. However, the three crewmen said they find just as many careless parkers in front of churches on Sunday morning."



A plow crew at work. The motorman ran the car and controlled the front plow, sanders and salt dispenser. It took two to run the wing plow. The wingman at right has his hand on the control to push the plow out. The wing plows were manually retracted and that's what the helper at left is doing. In the foreground are the salt and sand bins. Minnesota Historical Society collection.

Right: The plow crew had to "bounce" 80 autos that fouled the tracks.

was felt by the plow. The first was torn from the ground where it was frozen in some six or eight inches, but the wing slid harmlessly over the others. The "scoop" in front was not used, as there was no snow on the tracks, but there is no question as to its working. The trials of the wing were most satisfactory.

The plow was so large that in going down to Minnehaha care had to be exercised when going around curves and in passing the "cut-out" boxes on the poles between the tracks. The boxes are high above the tops of the ordinary cars, but a number of them had to be moved before the plow could pass. Under the railway bridge on south Washington avenue the plow just made it by a tight squeeze.

General Manager Hield and Supt. Smith headed the party which made the trial. Both of them expressed themselves as highly pleased with the result of the run and over the fact that the successful working of the plow would enable the company to give the

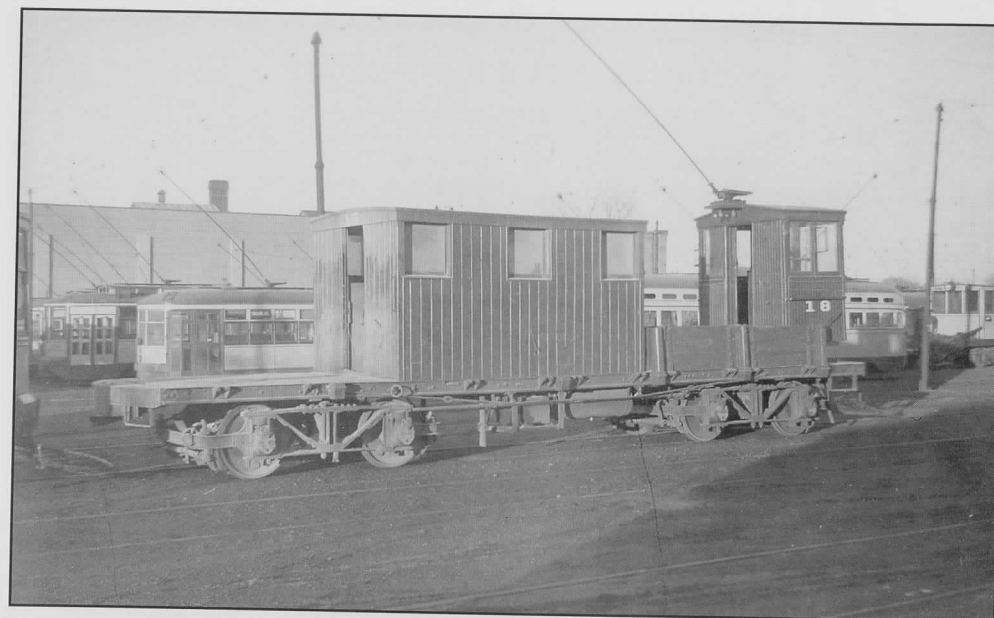
public so much better service in case of severe snowstorms or blizzards."

On Feb. 6, 1895, a story said that many of the open cars used in summer from which the motors had not yet been removed were called into service to propel the plows.

Mar. 26, 1897

"The snow removing force of the company is large and expensive. All the employees about the several stations, and all extra men, at once reported for duty. The work was thoroughly systematized; each gang of workmen knew the district in which they were to operate, and their training from previous encounters with the elements rendered their judgment more certain and their efforts were directed to greater advantage.

Of the snow plows in the hands of the company the monster known as "Jumbo", weighing 33 tons, did greater work the past season than was necessary during the three preceding



winters. The average citizen had no conception of the great quantities of snow along the lines of outlying districts. It was there that "Jumbo" became most valuable by reason of its superior weight, and it swept the snow from in front like chaff."

Nov. 22-23, 1898

Fourteen snow plows were deployed, Jumbo among them.

"On the Interurban line the wind continued to drift snow during the afternoon. The tracks were kept open by running a snow plow propelled by two cars.

On every line drifts as high as one's head were found. Even the largest of the snow plows had to make several attempts to make a road through them. When a plow found itself stalled it backed up a block or two and hurled itself at the drift with full force. This caused the snow to fly many feet into the air and it scattered everywhere."

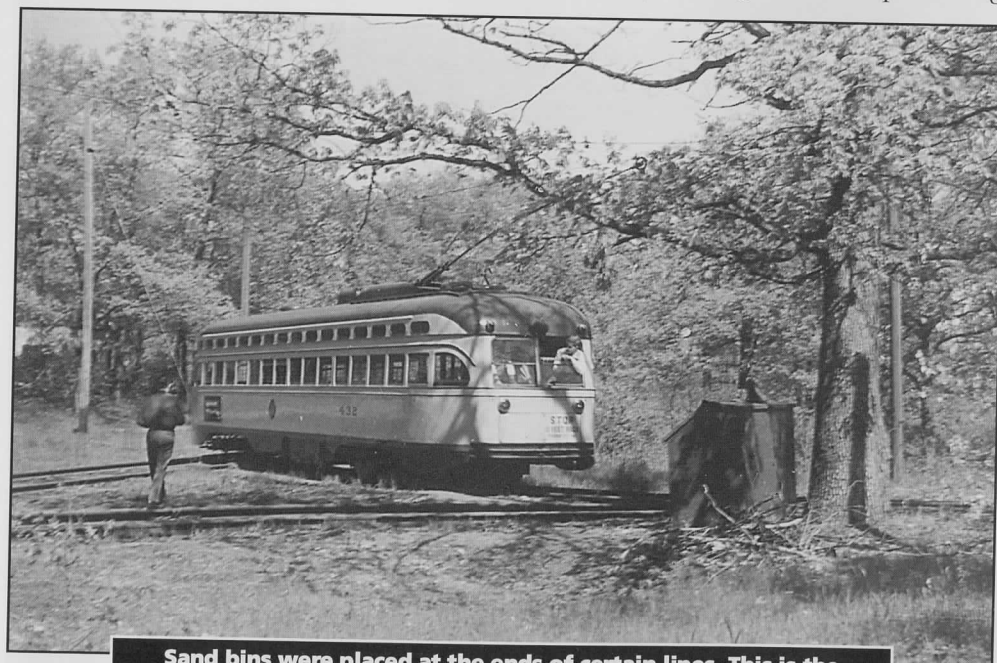
This story makes reference to "four-motor snow plows", probably numbers 2-20. They were built as open decked cars with no operator cab. Cabs were added by 1904 making them look like

conventional work motors. Some were used as work motors in warm weather. Oddly, the plow is described as following a string of passenger cars. It's unclear why. In the last paragraph, the reference to a "peculiar" street sweeper may refer to sweeper #1 (photo page 6.)

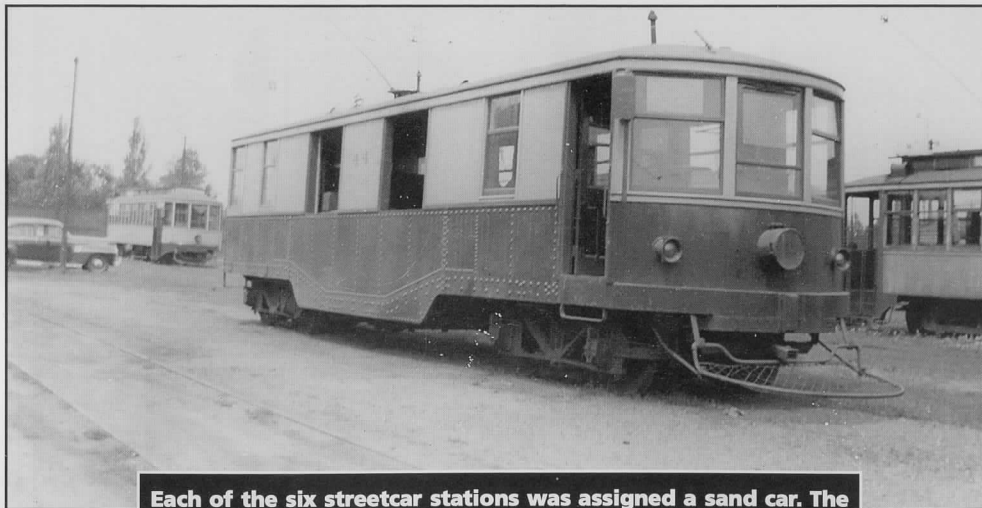
March 13, 1899

"Probably never before in its history has the Minneapolis Street Railway Company had a tougher time as the result of a storm. Within two hours after the storm began the company was laid low and regular traffic was stopped. All attempts to keep the lines open Saturday night resulted in failures and, in fact, made matters worse than ever, in that teams would drive over the tracks which had been plowed, tramping down the snow which was wet and which froze under additional snow, until nothing but a shovel, pick and elbow grease could cut a way through.

The Interurban was the first line opened, and this only the result of many snow plows with trains of several cars connected together.



Sand bins were placed at the ends of certain lines. This is the Mahtomedi wye during a Minnesota Railfans Association fan trip. PCCs normally didn't run to Mahtomedi.



Each of the six streetcar stations was assigned a sand car. The cars sprinkled sand on the tracks to improve adhesion. Three of them, #14, 16 and 18, were converted from flatbed work cars. The other three, #43-45, were purpose built in 1911 at Snelling. Sand was loaded through the large open windows.

About 1 o'clock Sunday morning a train of six cars with one of the huge four-motor snow plows in the rear, came north on 3rd Street from 4th Avenue. At 1st Avenue S. this long train stuck in the drifts and it was 3 o'clock before the train reached Nicollet Avenue. The train would move ahead a few inches, then back, then make another flying start and make a few more inches of progress. There was an undercoating of wet frozen snow on the tracks, and the wheels slipped merrily around. Shovels and brooms were brought out and the two rails cleared to Nicollet Avenue, and even then little progress could be made. Then the train was cut in two sections. Power would be turned on the forward section and the rear section would back up, take a flying start and then bump the forward section and in this way, inch by inch, progress was made. When the big snow plow on the rear end of the train reached the middle of the block the copper wire wound around the trolley pole blazed up brightly in an incandescent electric light. Then the pole

caught fire and another delay ensued while a new trolley pole was substituted. Trains were made up of as many as ten cars. These trains sometimes required hours at a time to make a progress of a block, although the tracks had been roughly shoveled off.

In the afternoon a new scheme for clearing away snow was given a trial. This peculiar plow worked as does an ordinary street sweeper with swiftly revolving brooms in front which scattered the snow in all directions. Apparently the trial was a success, for the peculiar car managed to make it way north on Washington Avenue and was lost to sight over the bridge."

According to another newspaper story, TCRT employed 500 men to fight the storm. It also describes trains of up to 11 cars pushing snow plows. One train of six cars had 50 men assigned to it, presumably to do hand shoveling. Another article said that the company had 40 salt cars, converted from old single truck streetcars. They followed the plows, laying down salt.

March 14, 1899

"A 30-ton snow plow attempted to clean the curve from Hennepin Avenue on to 12th Street, and after several futile attempts to start, it backed up and took a running start. So hard was the ice frozen in the flange of the rail that it threw the huge plow off the track and it ran two car lengths off the track. A big flat plow attempted to pull the other plow back upon the tracks and failed, breaking two heavy steel gears in the attempt. Then the big jumbo plow was sent out and it finally got the plow back on the car track. Several of the large four-motor plows were at work on the Harriet line.

Last night a crew of 75 men with picks and shovels, and the Jumbo plow, started out to open the 6th Avenue North line. The men were picking open the rails on the 5th Street bridge. The snow was packed solid to the rails in so many places that even the Jumbo plow, which weighs some 50 tons, was derailed by ice and its progress up the grade to the bridge was found an utter impossibility until picks and shovels had cleaned out the tracks."

As 1900 approached, TCRT found itself employing a mix of unpowered horsecar-era scraper plows, self-powered sweepers, the open-decked 4-motor plows and the much-remarked "Jumbo". In 1898 it had begun manufacturing its own passenger cars, which were much larger, heavier and more powerful than their little four-wheeled predecessors.

In 1904 TCRT built snow plow #25. It featured a fully enclosed box body, which set the style for all subsequent plows. It weighed just under 20 tons, and featured low gearing. It was assigned to the Stillwater line and doubled as a line car. It remained on the roster until 1918, when it was sold to the Minneapolis, Anoka & Cuyuna Range.

Although Jumbo was too mechanically complex, it demonstrated the value of sheer mass. The double truck flatcar plows of the 1890s weighed 22 tons. Jumbo was 30 tons. In 1906 TCRT applied all the lessons it had learned and built plow #22. It was single-ended and had a fully enclosed box body similar to #25, but it weighed almost 33 tons. It was followed in 1907 and 1908 by six more, #23, 24, and 29-32. Built to the same basic plan as #22, they were double-ended, with a plow on one end and a sweeper brush on the other end. The extra hardware increased their weight to 37.5 tons. As the new plows entered service, the old flatcar plows were retired, the last one in 1912.

The construction of the box plows beginning in 1906 coincided with the opening of the Lake Minnetonka line and construction of the high speed suburban cars. This was not a coincidence. The suburban cars were equipped with GE73 motors, which packed 75 horsepower instead of the 50 horsepower motors under the rest of the fleet. Because service to Lake Minnetonka and Stillwater was much heavier in the summer than the winter, the powerful trucks from some of the suburban cars were regearred and shifted to the snowplows each winter. When the suburban cars were retired in the 1930s, the plows kept those trucks year round.

Three more of the box body plows were built in 1910, and a final eight in 1918. They were needed as the system grew in mileage. These, however, were single-ended and lacked the sweeper brush. #22 remained one of a kind. Subsequent plows looked the same, but had a different arrangement of windows and doors. Plow #38 was assigned to the Stillwater line, so it was given a double shear plow that pushed snow both left and right, while a plows used in the city were single shear, pushing snow only to the right. The newest plows, #75-82, were

slightly larger. Instead of side doors, they had a single door in the middle of the rear end and no side windows. Each station had a mix of newer and older plows. All continued in service until 1953-1954. In 1942, the sweeper brooms were removed from the double-ended plows.

After about 1920, the plows were assigned as follows:

Nicollet Station	32, 77, 78
North Side Station	30, 80
Lake Street Station	29, 36, 79
East Side Station	24, 76, 81
Snelling Station	22, 31, 37, 82
Duluth Station	23, 38 after 1932, 75
Owen Street (Stillwater)	38 until 1932

Sand cars

Plowing was only part of the snow removal effort. Salt was deposited on track switches to melt the ice and snow. The rails were sanded to improve adhesion. The plows salted and sanded as they went, but each station had a sand car that patrolled the lines depositing sand and salt as needed. Three of these were conventional work cars retrofitted with sanders (#14, 16, 18). Three were purpose built at Snelling Shops for sanding.

All the passenger cars were equipped with air-operated sanders that blew sand onto the rails ahead of the front wheels. Sand bins were located at the end of many lines so the crews could reload the sand boxes under the right front longitudinal passenger seat. The front trucks were also equipped with ice scrapers that could be lowered onto the rail head.

THE BOOMER

-Aaron Isaacs

The railroad term "boomer" refers to an employee who moves from railroad to railroad, never staying long at any of them. The term has also been applied to pieces of rolling stock that served multiple owners. It seems appropriate to describe St. Paul Southern's unnumbered work motor. During its long life, from 1917 to 1953, it worked for three of Minnesota's and North Dakota's four electric interurbans. This is also a story of how these impoverished companies squeezed every bit of value out of their limited resources.

Actually, the car's story begins in 1914, with the opening of the St. Paul Southern. It purchased four classic wood interurbans from the Niles Car Company, two coaches (numbered 51 and 52) and a pair of combines (combined coach and baggage car, numbered 1 and 2). The cars were fitted with removable plows for winter service.

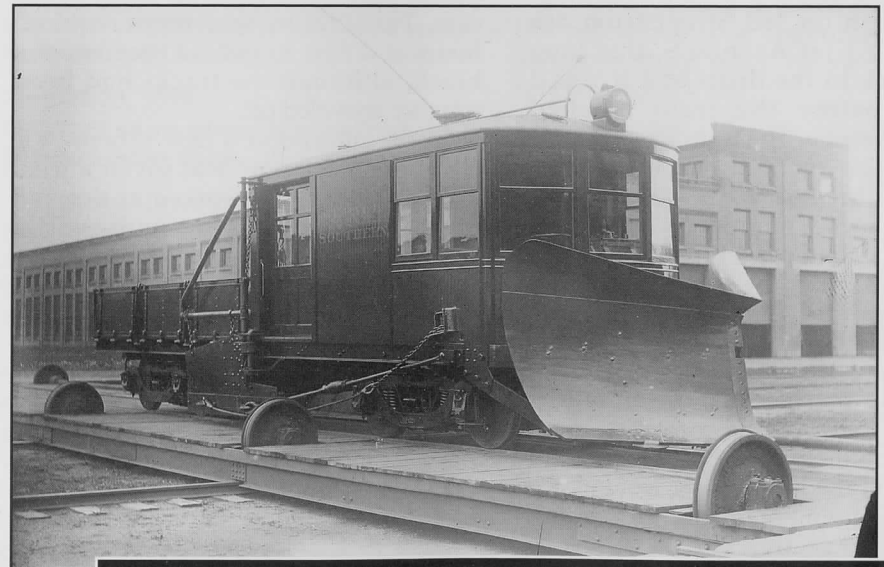
Car #1 was destroyed by fire in 1917. The company was able to salvage its trucks and motors.

Instead of buying a replacement, St. Paul Southern approached Twin City Rapid Transit to build a locomotive/work motor/snow plow using #1's trucks and motors. TCRT recycled the plans it had used in 1914 to build the switch car for the University of Minnesota's Inter-Campus line. The two cars differed in several ways. The Southern's car had fewer windows, was equipped with removable front and wing plows, and weighed 56,200 pounds, compared to the U of M car's 46,700 pounds. The plows and the heavier interurban trucks probably accounted for the extra weight, which would come in handy when pushing snow.

The electric interurbans were a classic economic bubble. Over 18,000 miles of them were built, most between 1900 and 1920. Their purpose was to



When St. Paul Southern combine #1 burned in 1918, its trucks and motors went to the new work motor.



These two TCRT builder photos at Snelling Shops show the St. Paul Southern work motor (above), and the car it was modeled on (right), the University of Minnesota work motor. The Southern car had fewer windows and a plow, but otherwise the two were basically the same.



**The motor
plowing snow
between Hastings
and Pine Bend.**



**In this photo, the St. Paul
Southern has installed a tower
for overhead wire work.**



**Note the wood installed over the windows to
protect them from breakage during plowing.**



Loading snow at Pine Bend.



The motor leads a passenger car. The location is unknown.



In later years, the MA&CR's equipment grew ever more shabby. Here is #110 at the Anoka carhouse sans plow.

provide frequent short-distance service that the steam railroads couldn't match, and to that extent they were successful. Soon, however, the automobile became commonplace and by 1940 most interurbans had disappeared.

Many interurbans were financially flimsy and few more so than the St. Paul Southern. Almost never able to turn a profit, it quit in 1928. There were no buyers for its passenger cars, which were already obsolete when built in 1914. The unnumbered work car was purchased by the Minneapolis, Anoka & Cuyuna Range, which ran from Minneapolis to Anoka and had just emerged from receivership. It replaced another piece of TCRT-built equipment, snow plow/line car #25, built for the Stillwater line in 1904 and sold to the MA&CR in 1917. On the MA&CR the work car was given number 110.

The Great Depression killed off all the remaining Minnesota streetcar systems, except TCRT and the MA&CR. Its cars and physical plant were badly deteriorated, but it hung on. The infamous Anoka tornado of 1939 tore down the overhead wire on Main Street. The company substituted buses for its streetcars, and limped along for four more years as a freight-only railroad. In 1942, #110 was renumbered to #105.

1943 saw the construction of Northern Ordnance, which built a huge ammunition plant on East River Road adjacent to the Northern Pacific's Northtown yard. The MA&CR passed right by the plant's front gate. Northern Ordnance bought the line and abandoned it from the new plant to Anoka. The remaining three miles to 30th Avenue NE and Marshall Street in Minneapolis were rebuilt, along with the most of the line's remaining rolling stock. Car #105 went to Snelling Shops for a complete rebuild in 1944. It emerged in patriotic red, white and



Now owned by the Minneapolis, Anoka & Cuyuna Range and numbered 110, the motor is shown at the Anoka carhouse. Note the tower installed for overhead wire maintenance.



blue. It received new control equipment, including a second controller at the other end of the cab, making it easier to run in both directions. The overhead wire tower was removed from the rear of the car and it was ballasted to increase its weight.

By 1948, #105 was considered surplus, and was sold to the Valley City Street and Interurban Railway in Valley City, North Dakota. Well, part of remained behind. The nose plow was removed and placed on an unpowered flat car, and that was the MA&CR's snow plow for the rest of its years.

One of the shortest interurban lines ever built, the Valley City Street and Interurban Railway extended for only 1.75 miles, connecting the Valley City depot of the Northern Pacific with the Soo Line at North Valley City. Car #105 was purchased to replace passenger car #2. Car #105 remained in service until 1953, when the line was purchased by the Soo Line and the wires came down.



FREI

Minneapolis, Anoka and

EDWA



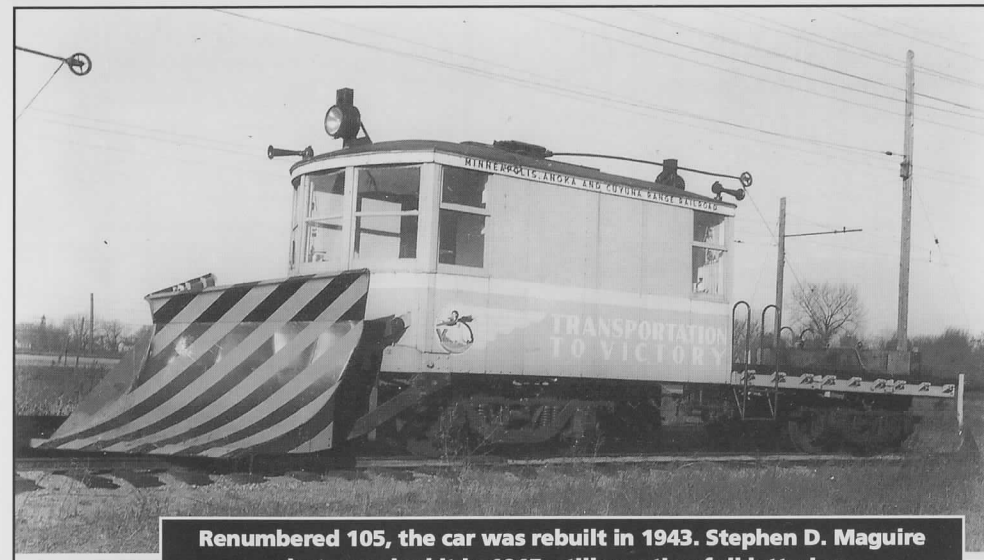
HT TARIFF No. 63

Cuyuna Range Railway Company

W. D. P. BURCH, Receiver



Outfitted with a derrick to pull rail onto the flatcars, #110 pulls the scrapping train along East River Road in 1943.



Renumbered 105, the car was rebuilt in 1943. Stephen D. Maguire photographed it in 1945, still sporting full lettering. Below: Subsequent repaintings omitted the lettering. Note the concrete ballast blocks on the rear deck.

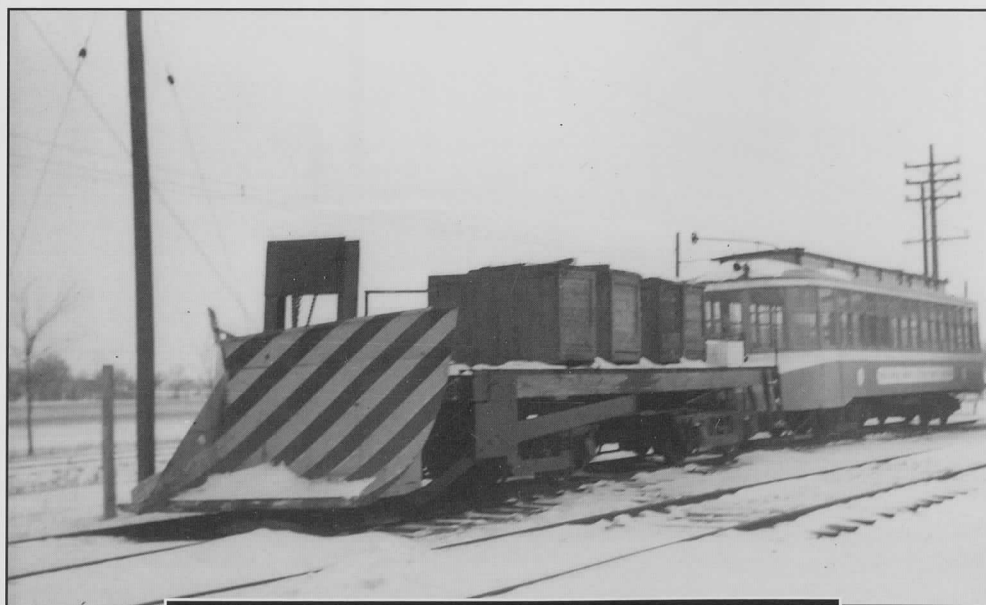




This photo by Stephen D. Maguire is something of a mystery. It shows #105 painted white, with the railroad name on the letterboard. This may be a primer coat.



In Valley City, the motor retained its faded red, white and blue MA&CR paint scheme.



MA&CR sold #105 to the Valley City Interurban in 1948, but kept the plow and mounted it on this flatcar.



The boomer freight motor arrived in 1948 and handled all freight until the Soo Line purchased the company in 1953 and removed the overhead wires. Barnes County Historical Society collection.

Valley City Street & Interurban Railway

In his book *Electric Railways of Minnesota*, Russ Olson extends his coverage into North Dakota. That makes sense, because three Minnesota streetcar systems crossed the state line (Grand Forks-East Grand Forks, Fargo-Moorhead and Wahpeton-Breckenridge). There were only two others in the state, in Bismarck and Valley City. There is no North Dakota Streetcar Museum, so we might as well fill the vacuum, especially since this issue tells the story of the work car that ended up in Valley City.

Valley City sits in the deep valley of the Sheyenne River, 58 miles west of Fargo. The Northern Pacific built through in 1872 on its way to the west coast and established the town. In 1891 the Soo Line arrived on its way from Minneapolis to Portal, ND, where it connected with the Canadian Pacific to form another transcontinental line to British Columbia.

Because of the hilly topography, the Soo Line crossed over the NP on a bridge, so there was no interchange between the two. The Soo established a depot at North Valley City, almost two miles from Valley City. The Soo Line wanted access to Valley City for local freight, passengers and an interchange with the NP, but for 14 years nothing happened.

The locally-owned Valley City Street & Interurban Railway Company was incorporated in 1905 to finally fill that need. It constructed a 1.75 mile line from the North Valley City Soo Line depot to the NP depot in Valley City. The line entered Valley City on 5th Avenue E. and zig-zagged on city streets through the heart of town. The company erected a freight house/car barn/repair shop at the corner of 4th Street N. and Central Avenue. Second hand double truck

passenger car #1 was purchased, along with a pair of open trailers. Service began December 18, 1905.

The NP owned a spur line to a gravel pit on the north side of town. The spur paralleled the Interurban. Because the two were convenient to one another, a freight connection was established about three city blocks north of the NP mainline, near a cluster of shippers.

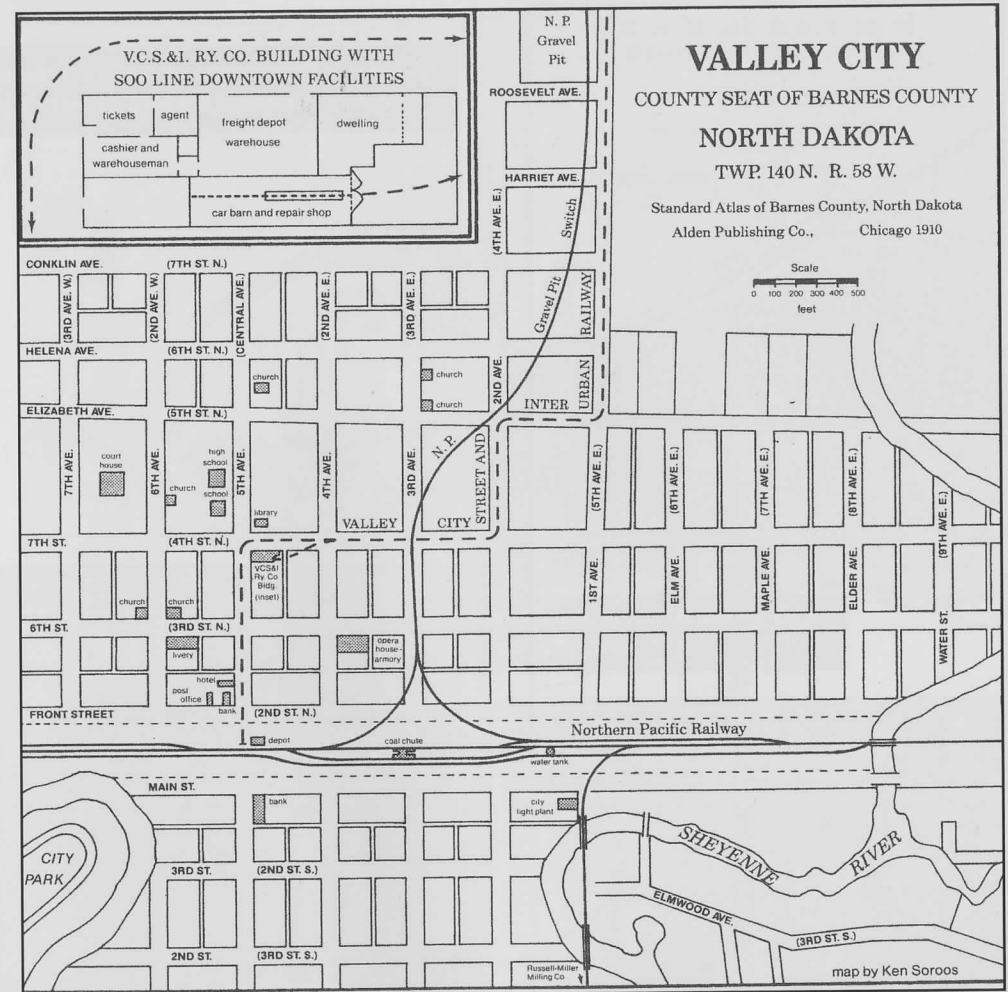
In 1911 the Soo Line entered into an agreement for the Interurban to haul its freight to/from Valley City. The Soo rented space in the Interurban's freight depot for an agent's office. It constructed its own team track and loading platform in Valley City.

In 1915 the Interurban purchased new combine #2 from McGuire-Cummings. It did double duty as the freight locomotive and passenger car.

In 1908 the NP built a new "high line" through Valley City. It included a high bridge crossing of the Sheyenne River, eliminating steep grades on both sides of town. A new depot was built on the northwest edge of town. The original mainline remained in place for local freight service.

The Interurban ended passenger service to the NP Valley City depot in the 1930s and probably abandoned the three blocks of street running between it and the freight station at that time. It also eliminated the south end of street running on 5th Avenue NE with its right-angle turn in favor of a more gentle curve using the the freight trackage.

Nonetheless, passenger service appears to have continued through World War II. Sometime in the 1940s, the Interurban vacated the freight depot/carbarn building. This permitted the removal of the last of the

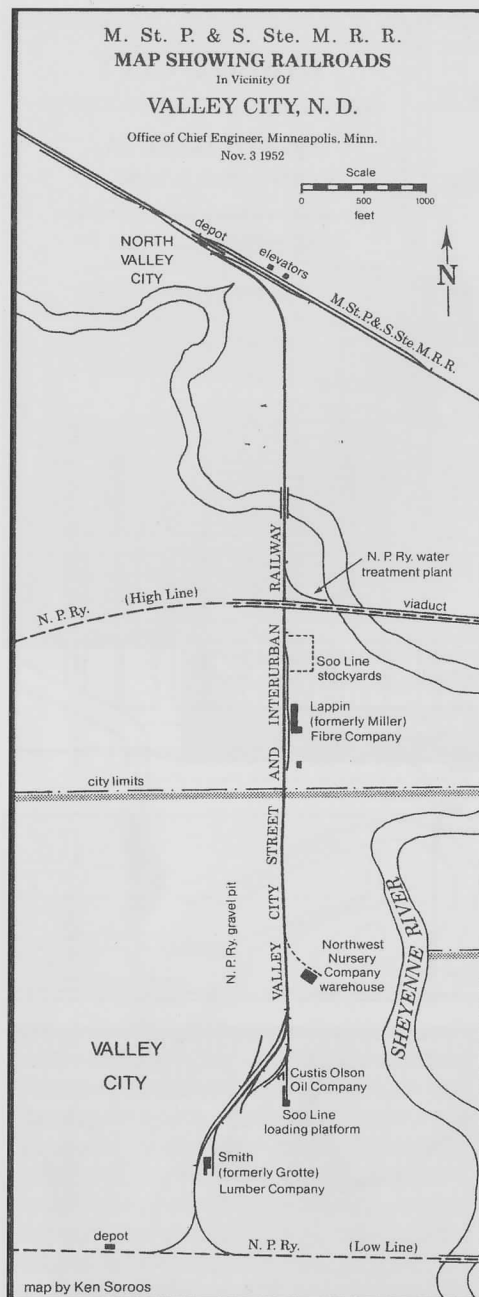


street trackage.

In 1948, car #2 was retired and car #105 was purchased from the Minneapolis, Anoka & Cuyuna Range. Electrified freight service continued until 1953, when the Soo Line purchased the Interurban and took over service on the line. The Soo Line continued to run dieselized freight service into the 1980s, but eventually the line was abandoned.

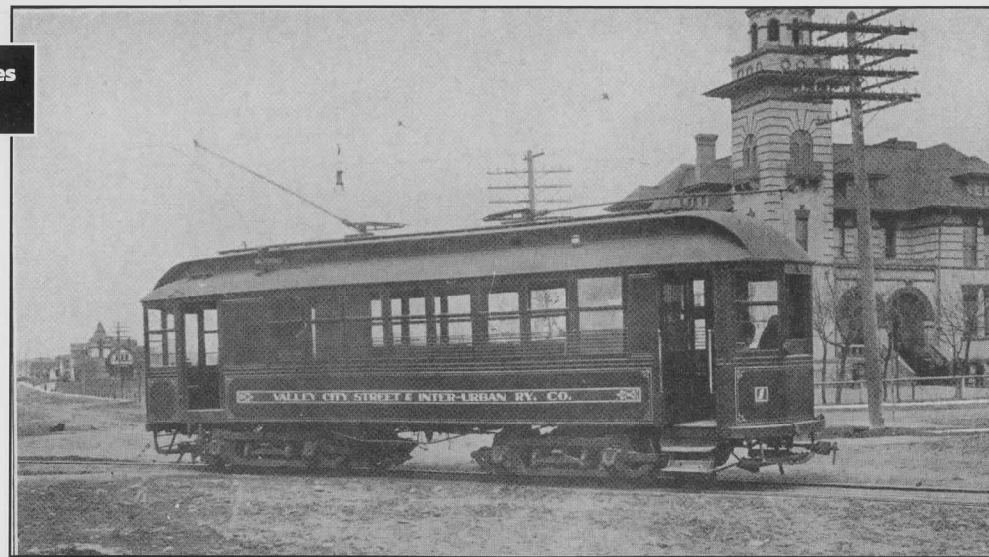
Reference: The most complete coverage of the Valley City interurban is an article by Ken Soroos in the April 1981 issue of *Soo Line*, published by the Soo Line Historical and Technical Society.

Downtown Valley City in 1910. The Interurban ended at the Northern Pacific depot. As it zigzagged through downtown, it crossed the NP's gravel pit spur, but there was no rail connection. In about 1911, the NP spur would become the freight interchange between the two lines. Map by Ken Soroos, courtesy Soo Line Historical and Technical Society.

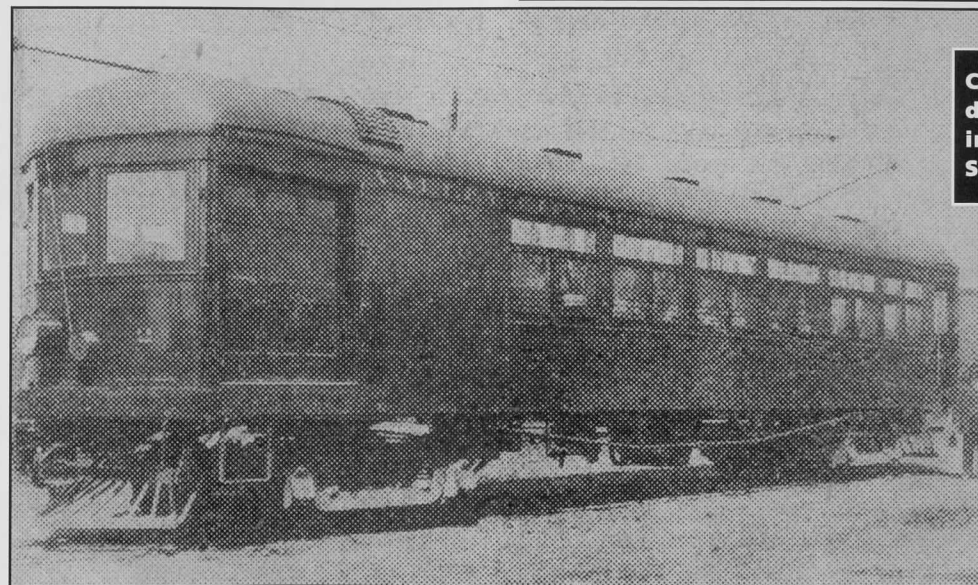


This is the entire 1.75 mile railroad, as it appeared in 1952. Maps by Ken Soroos, courtesy Soo Line Historical and Technical Society.

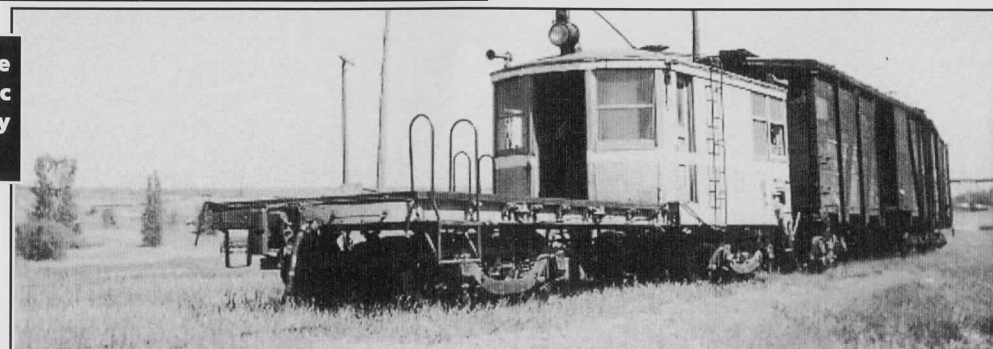
Combine #1 inaugurated service in Barnes County Historical Society collection.

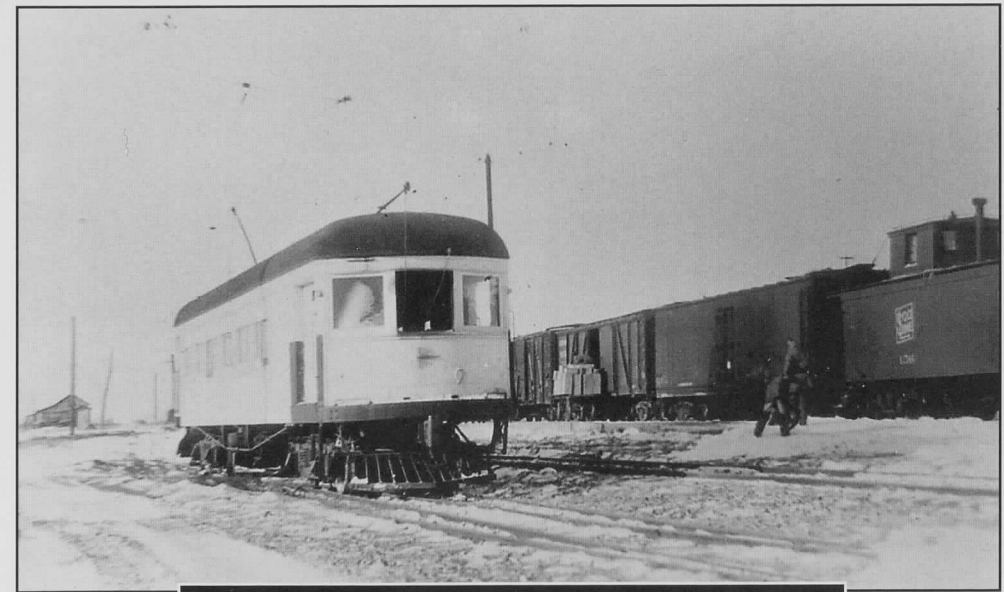
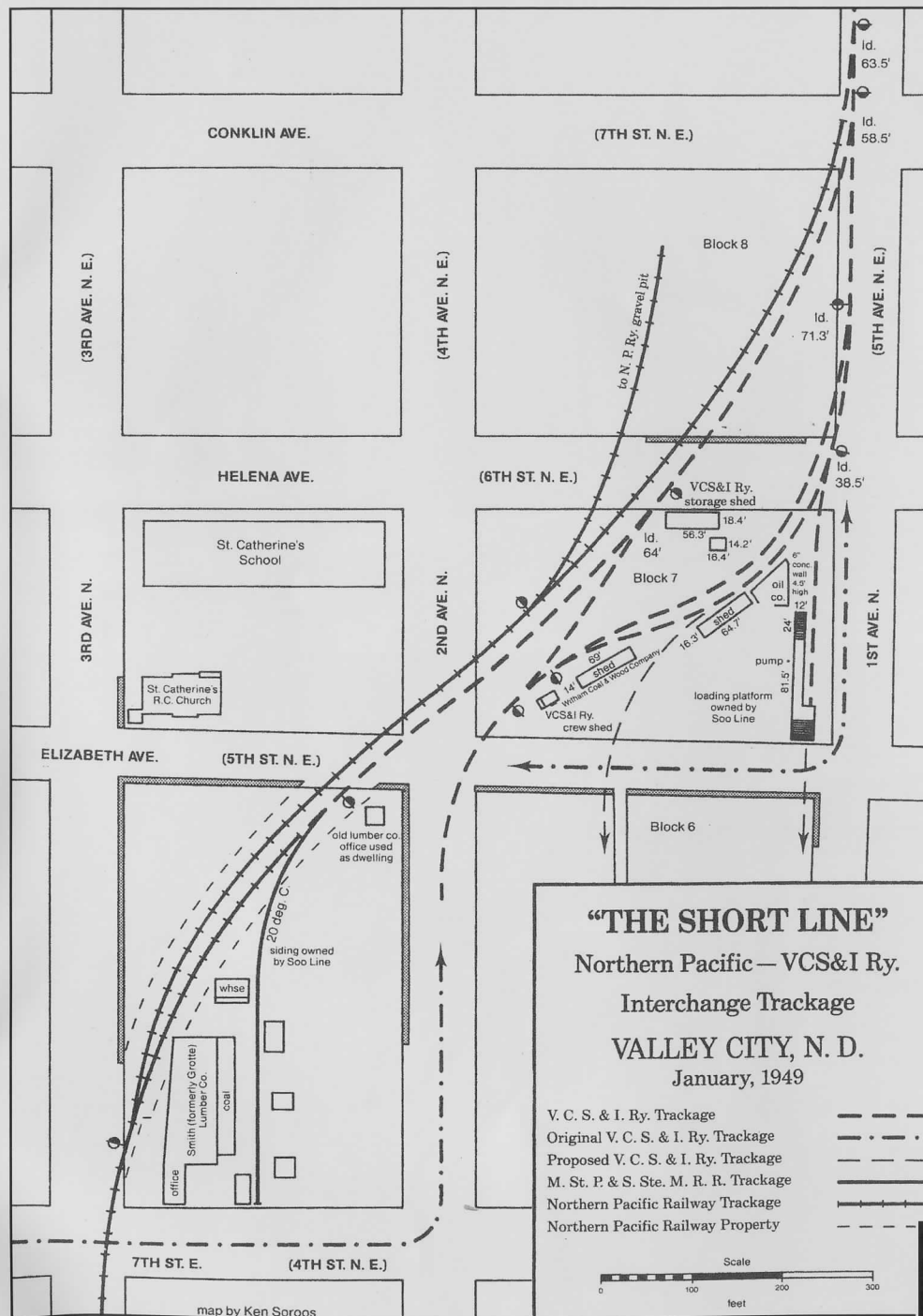


Car #2 as it looked when it was delivered from McGuire-Cummings in 1915. Barnes County Historical Society collection.

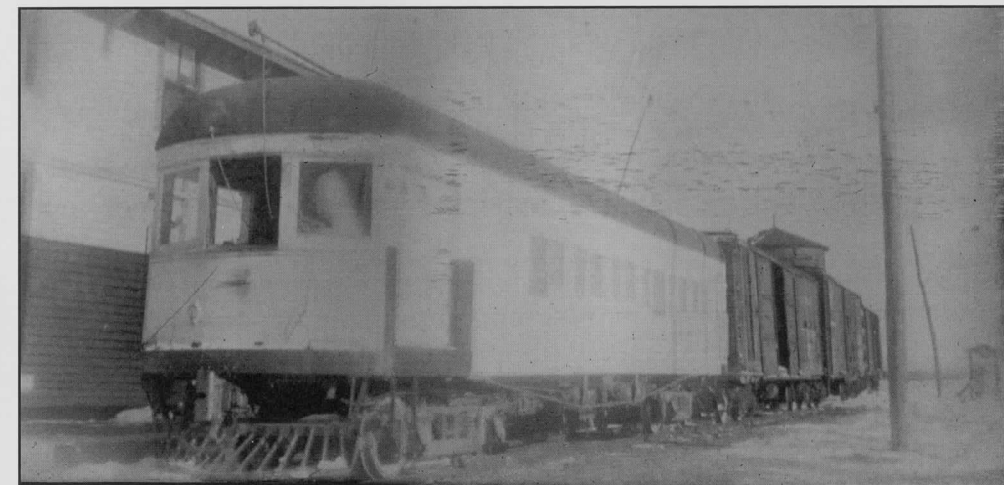


Work motor #105 was the sole motive power from 1948 until 1953, when electric operation was discontinued. Barnes County Historical Society collection.





**Car #2 at the Soo Line interchange in North Valley City.
Byron Olsen collection.**



**Car #2 hauled both passengers and freight.
Barnes County Historical Society collection.**

The Valley City interchange area in 1949. A careful viewing of this map shows how the NP and the Interurban connected with one another. The Soo Line built its own siding and loading platform, which were reached via the Interurban. The street trackage, abandoned by this date, is shown for reference. Map by Ken Soroos, courtesy Soo Line Historical and Technical Society



**Valley City Street & Interurban Railway
in winter, during the mid-1940s**

